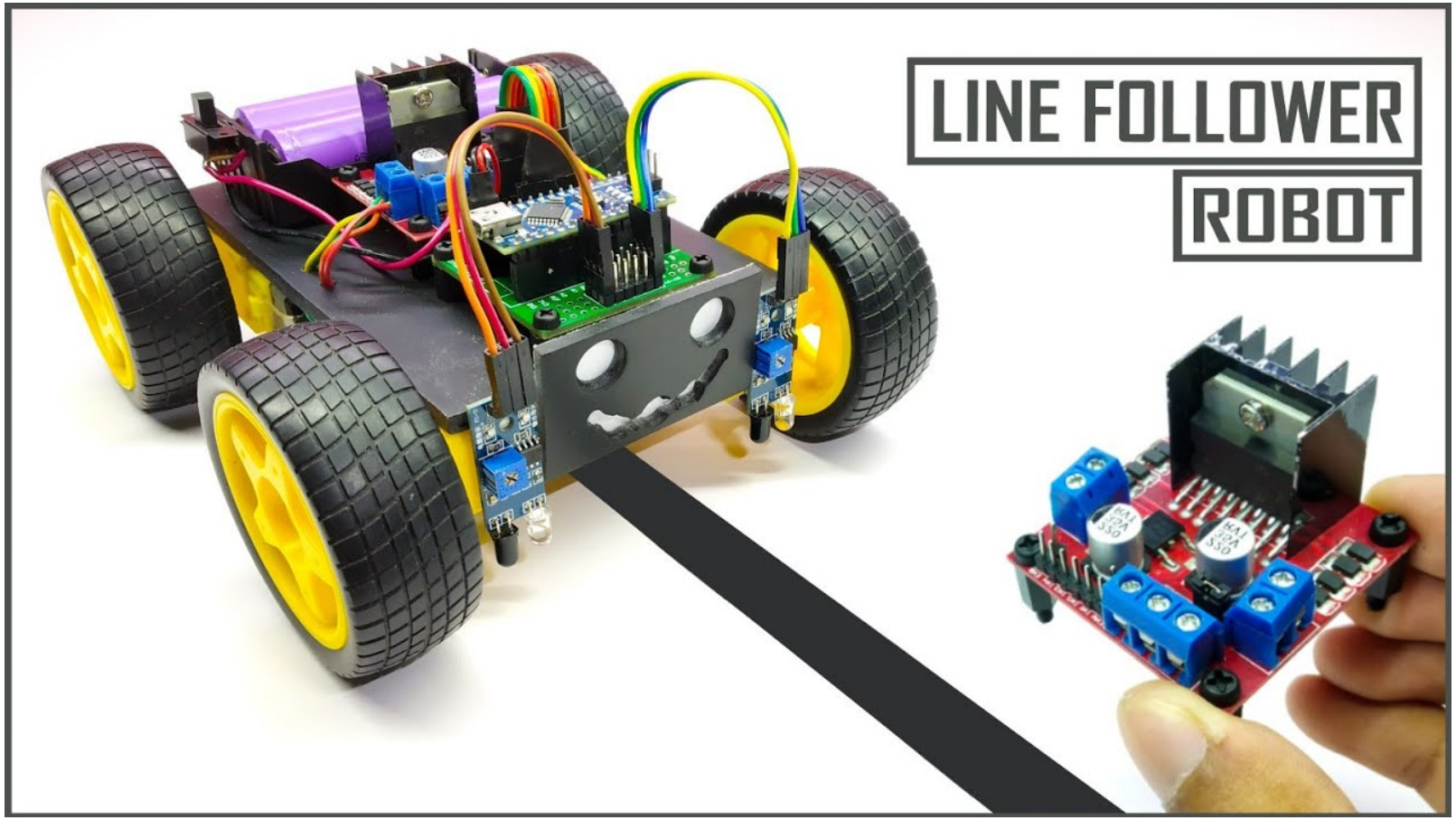
PROJECT No - 05
LINE FOLLOWING ROBOT

LINE FOLLOWING ROBOT

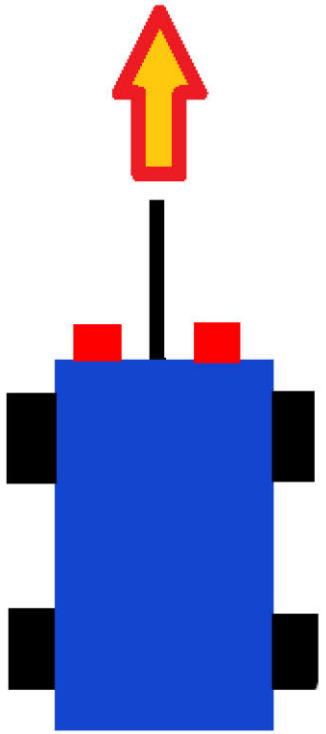
Design a Line Following ROBOT

1. Make the Flow Chart for Line Following Robot
2. Design the Circuit in Tinker CAD
3. Develop the Program in Scratch.
4. Generate C++ Code
5. Make the Actual Robot
6. Upload the code to Arduino.

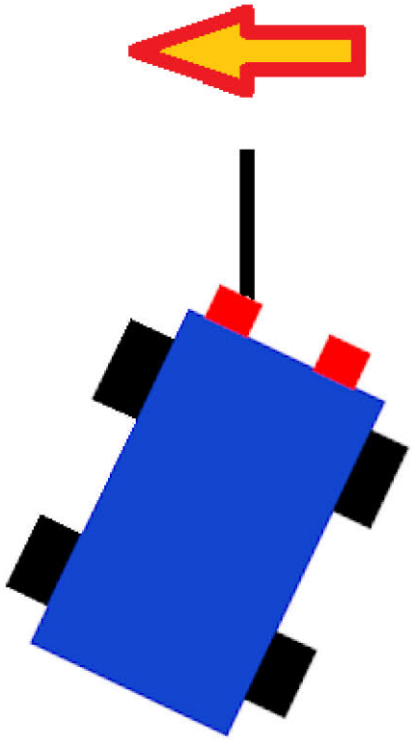


EXERCISE 11: LINE FOLLOWING ROBOT RULE

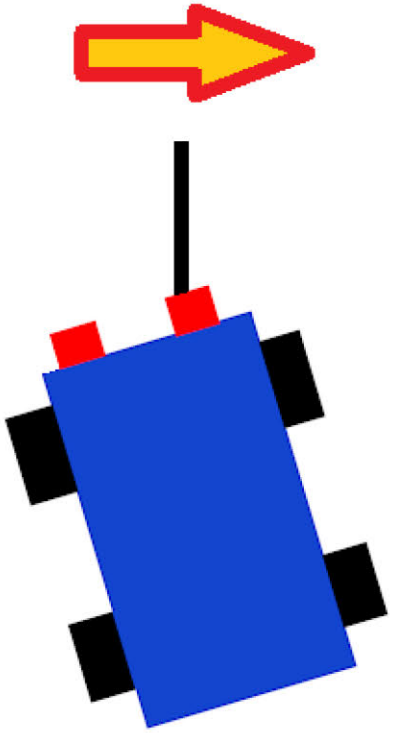
- Make the Robot by using 2 IR Sensors
- If 2 Sensors are giving 5V signals the Robot has to Move Forward
- If Left IR Sensor is not giving signal while the Right IR sensor is giving 5V Signal; the Robot has to turn Left
- If the Right IR Sensor is not giving the signal while the Left IR sensor is giving the signal the Robot has to Turn Right.



IN 1 - HIGH
IN 2 - LOW
IN 3 - HIGH
IN 4 - LOW



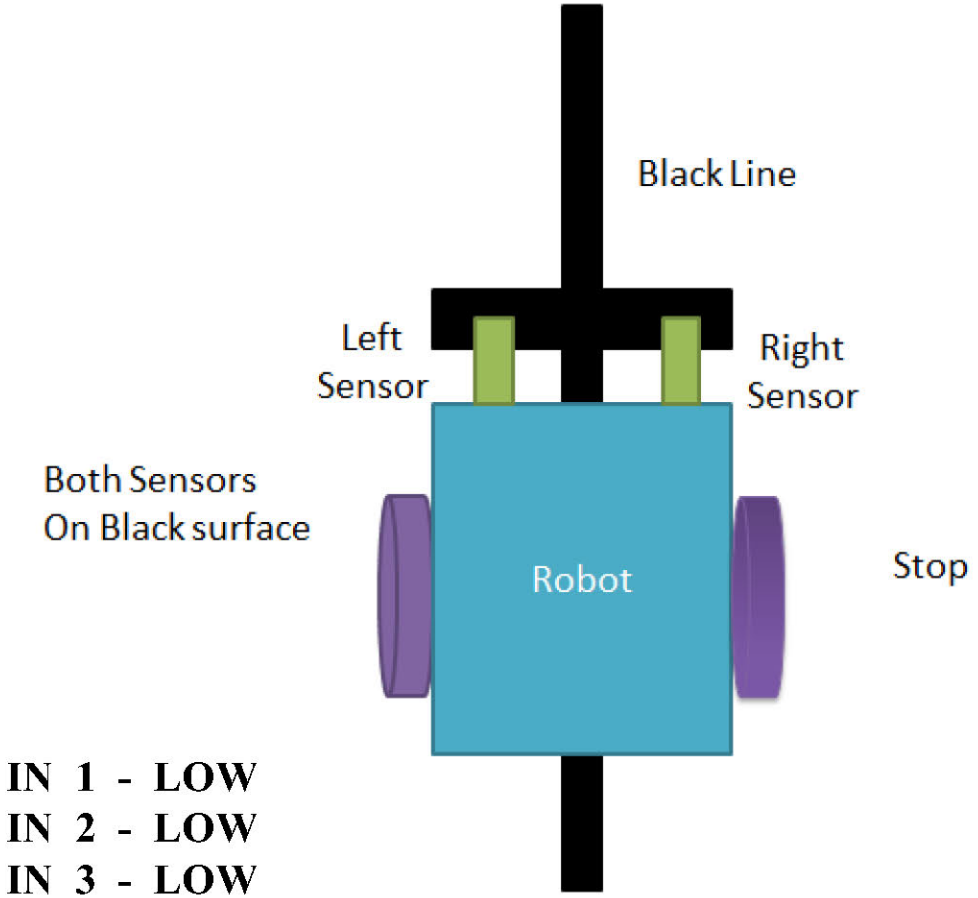
IN 1 - LOW
IN 2 - LOW
IN 3 - HIGH
IN 4 - LOW



IN 1 - HIGH
IN 2 - LOW
IN 3 - LOW
IN 4 - LOW

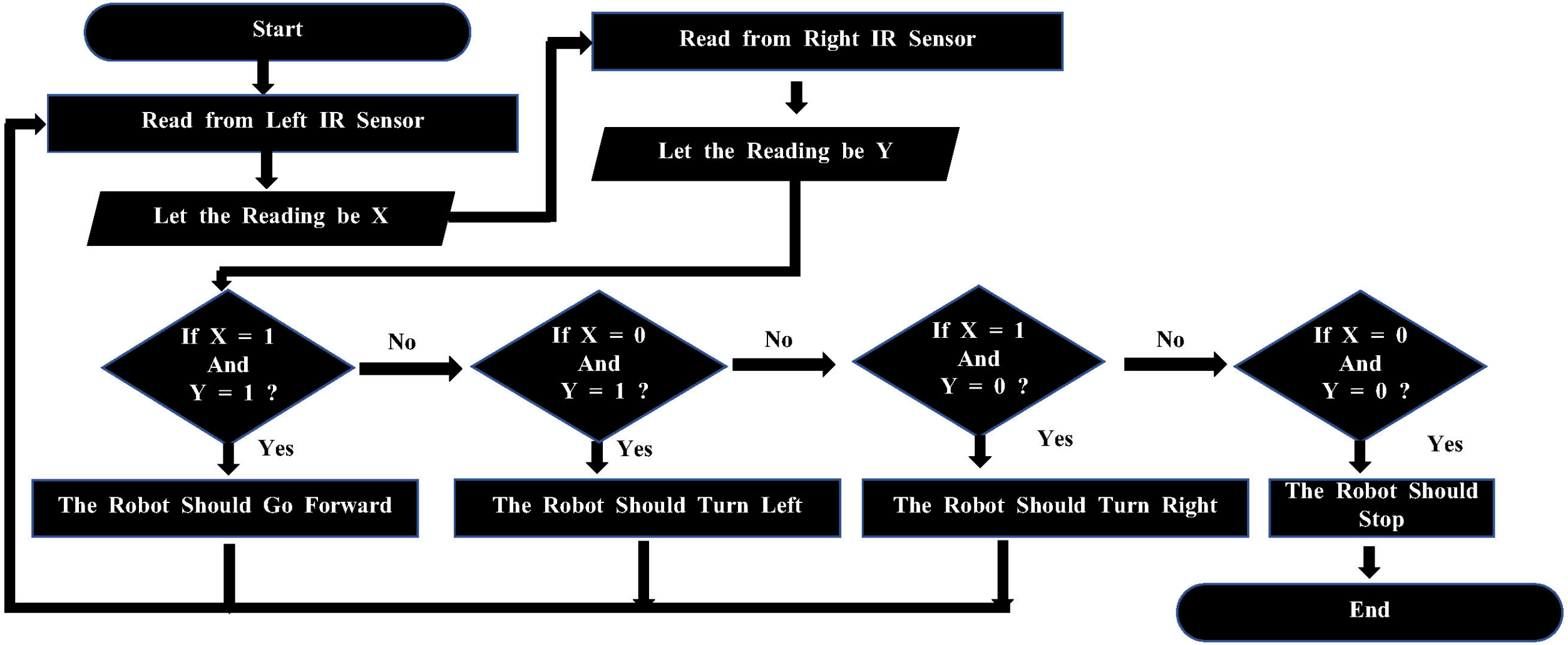
EXERCISE 11: LINE FOLLOWING ROBOT விதிமுறை

- If two sensor are not giving signals then the robot has to STOP.



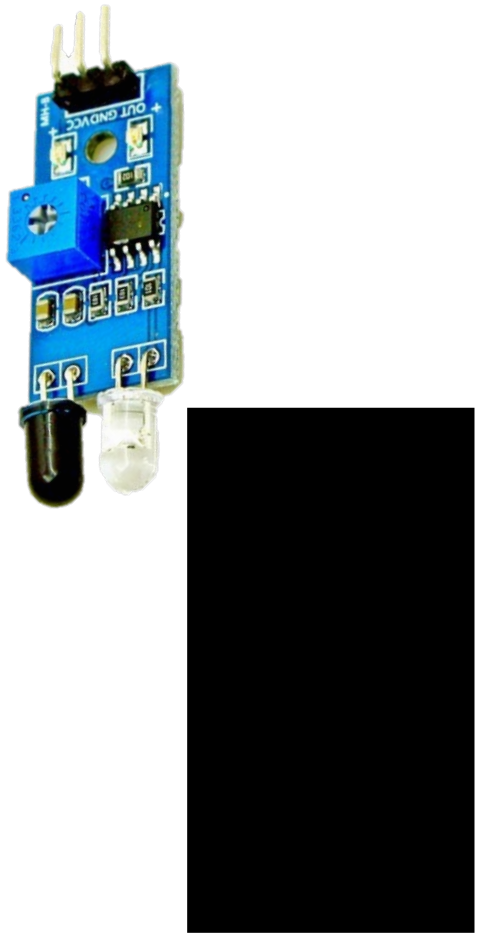
IN 1 - LOW
IN 2 - LOW
IN 3 - LOW
IN 4 - LOW

LINE FOLLOWING ROBOT FLOW CHART

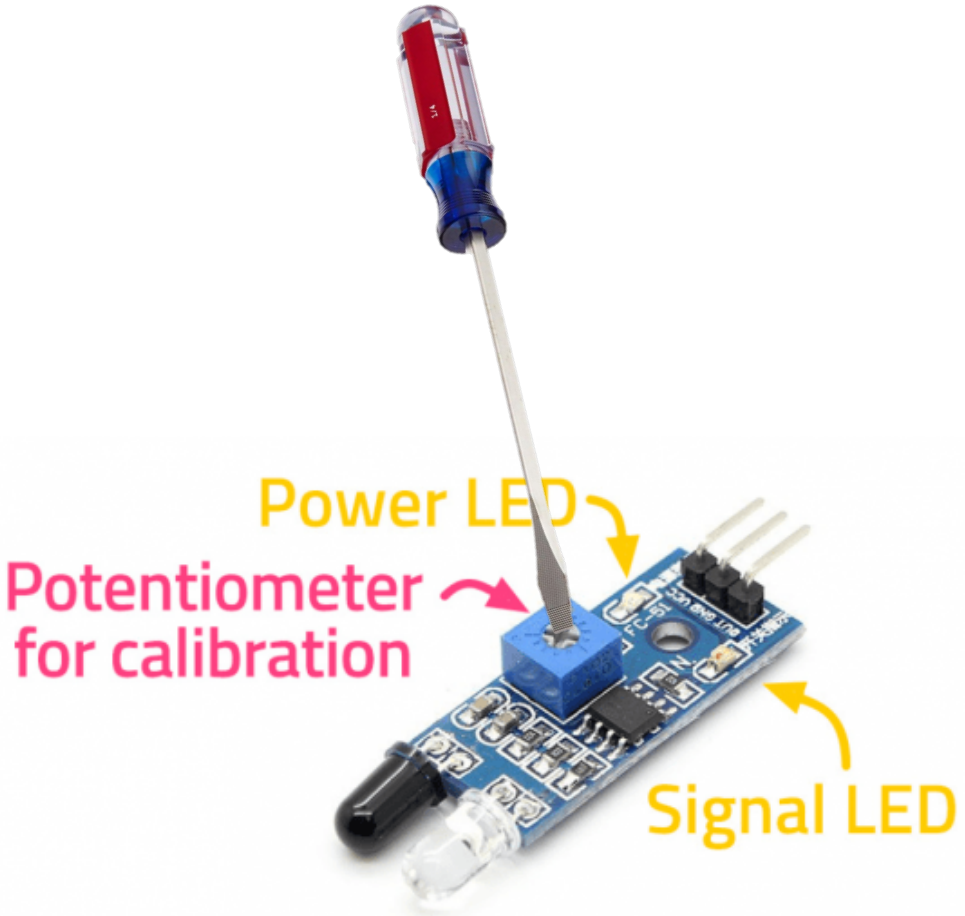

Start
Read from Left IR Sensor
Let the Reading be X
Read from Right IR Sensor
Let the Reading be Y
If X = 1 And Y = 1 ?
No
If X = 0 And Y = 1 ?
No
If X = 1 And Y = 0 ?
No
If X = 0 And Y = 0 ?
Yes
Yes
Yes
Yes
The Robot Should Go Forward
The Robot Should Turn Left
The Robot Should Turn Right
The Robot Should Stop
End

SENSOR CALIBRATION

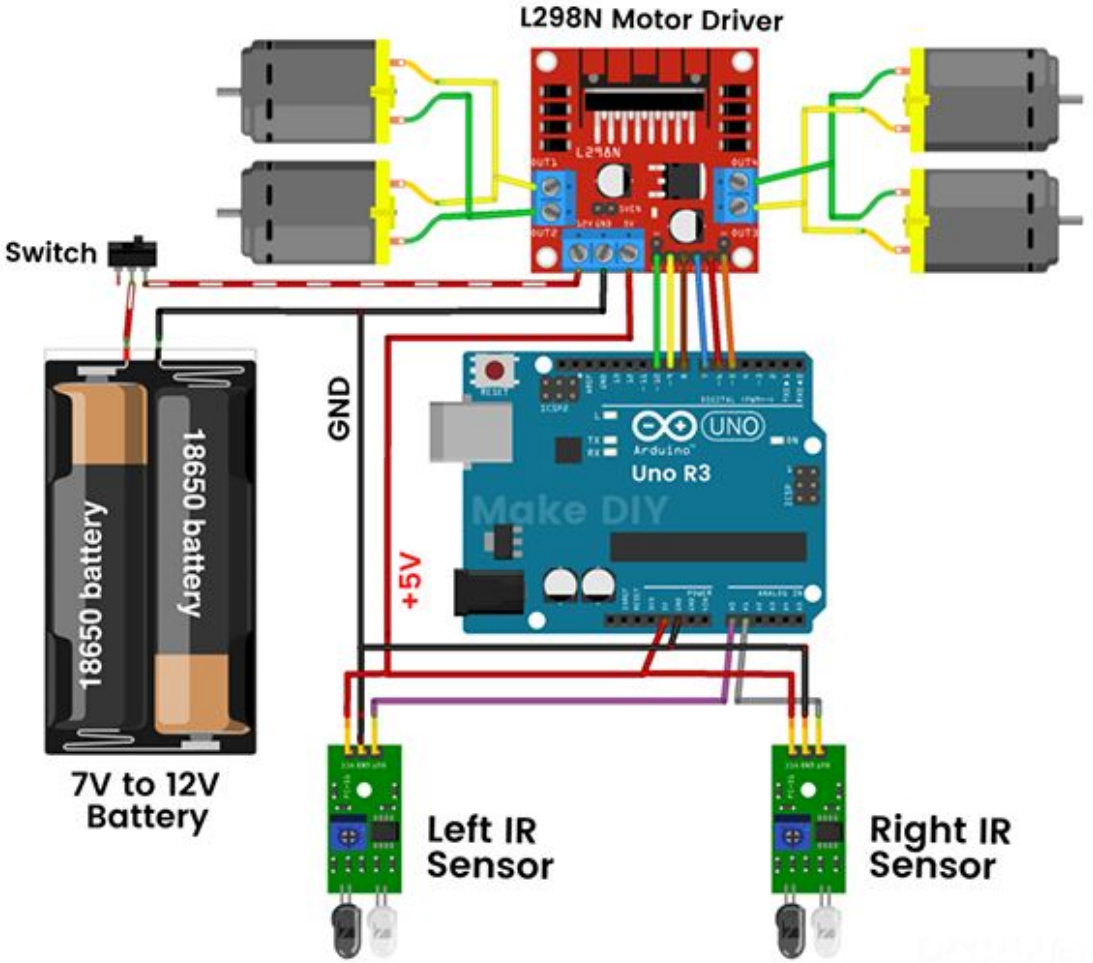
Signal LED ON



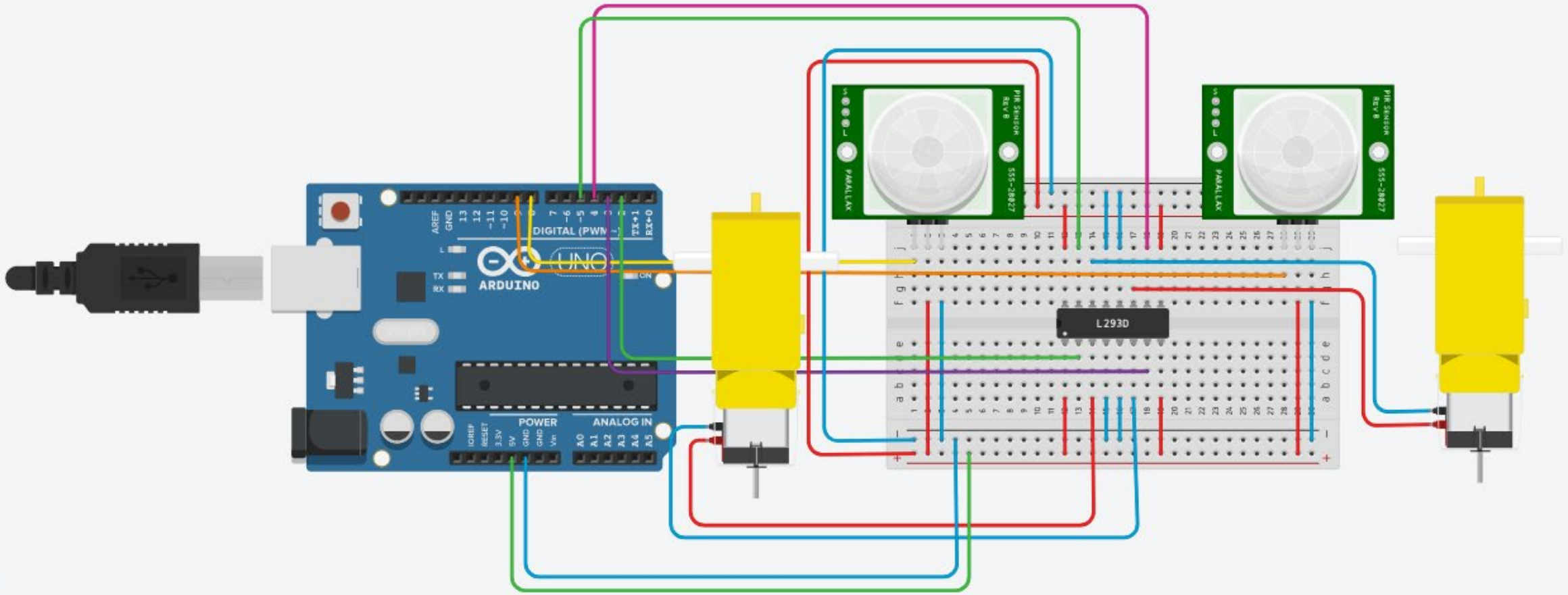
Signal LED OFF



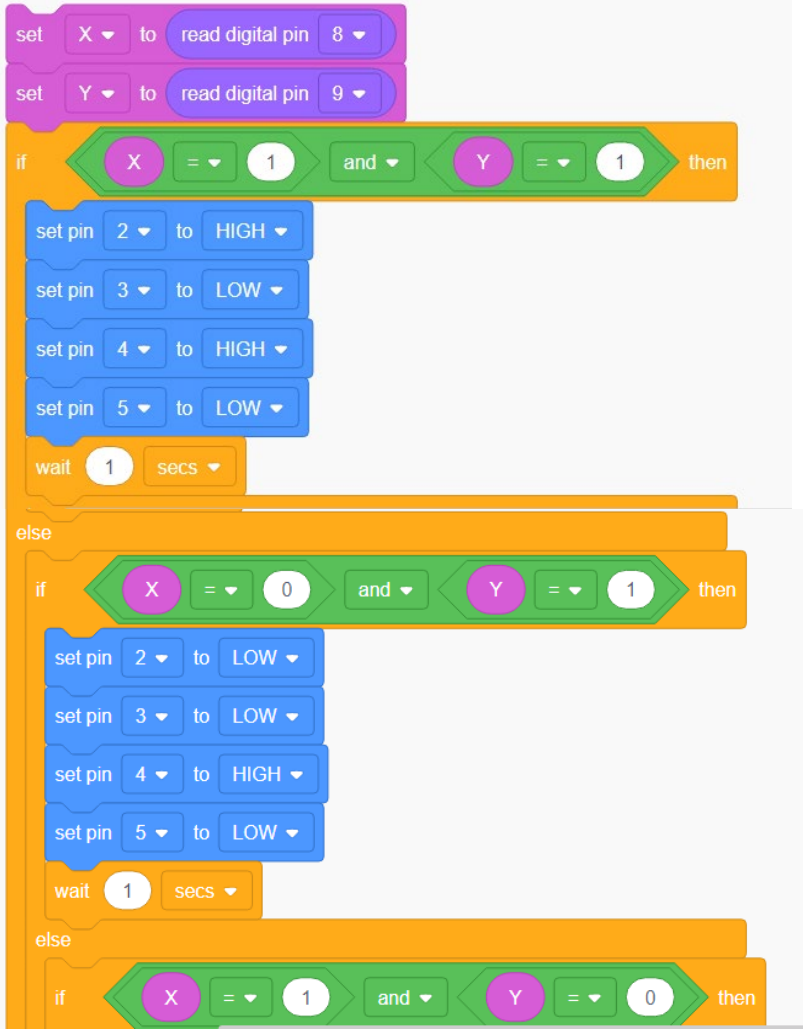
LINE FOLLOWING ROBOT - ACTUAL CIRCUIT DIAGRAM

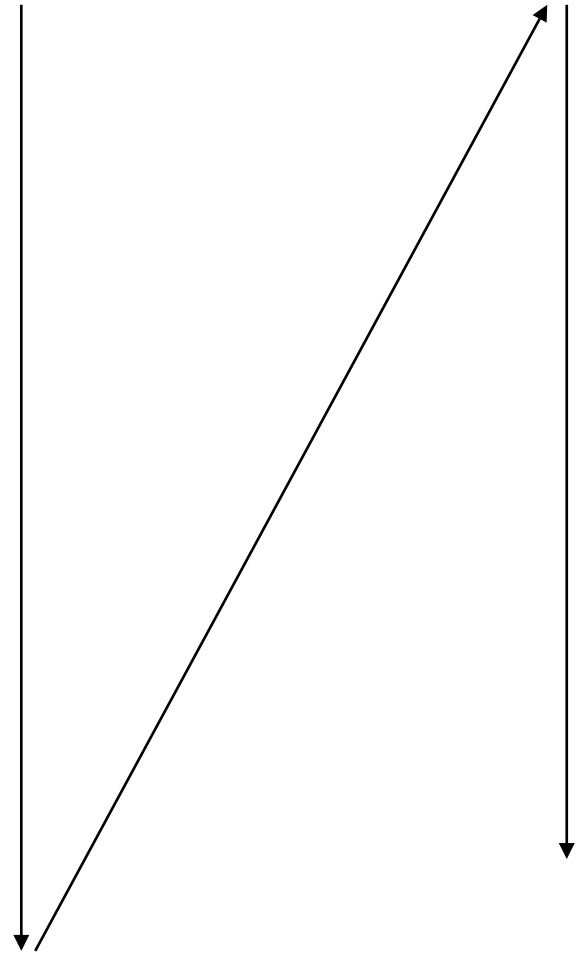


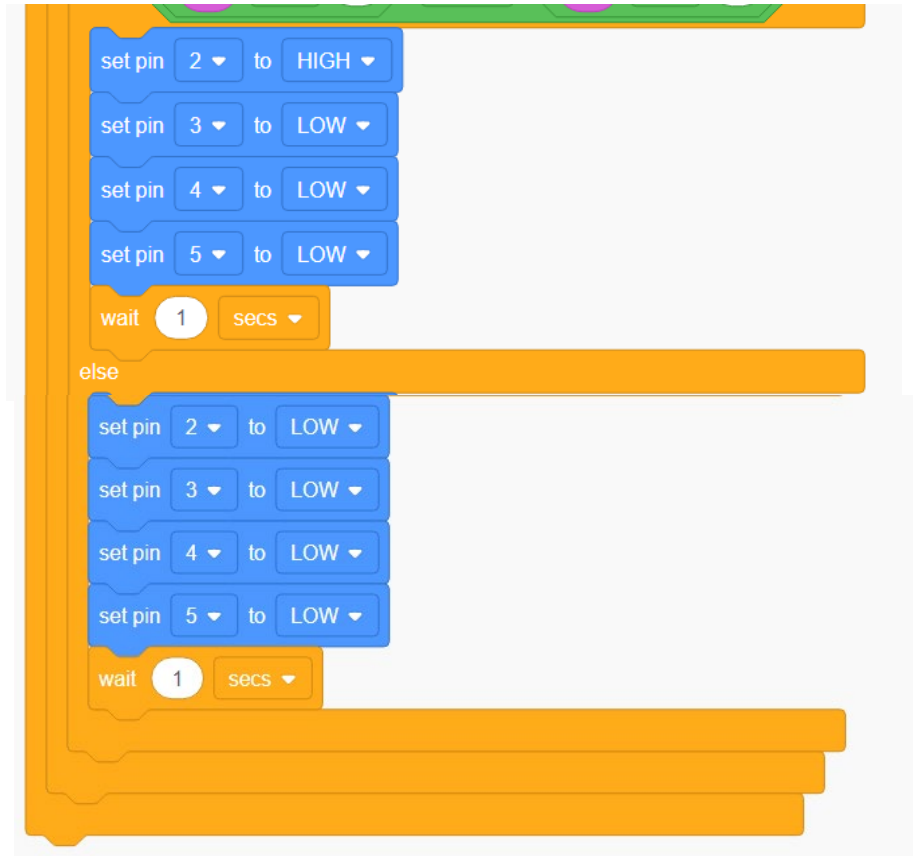
LINE FOLLOWING ROBOT CIRCUIT DIAGRAM



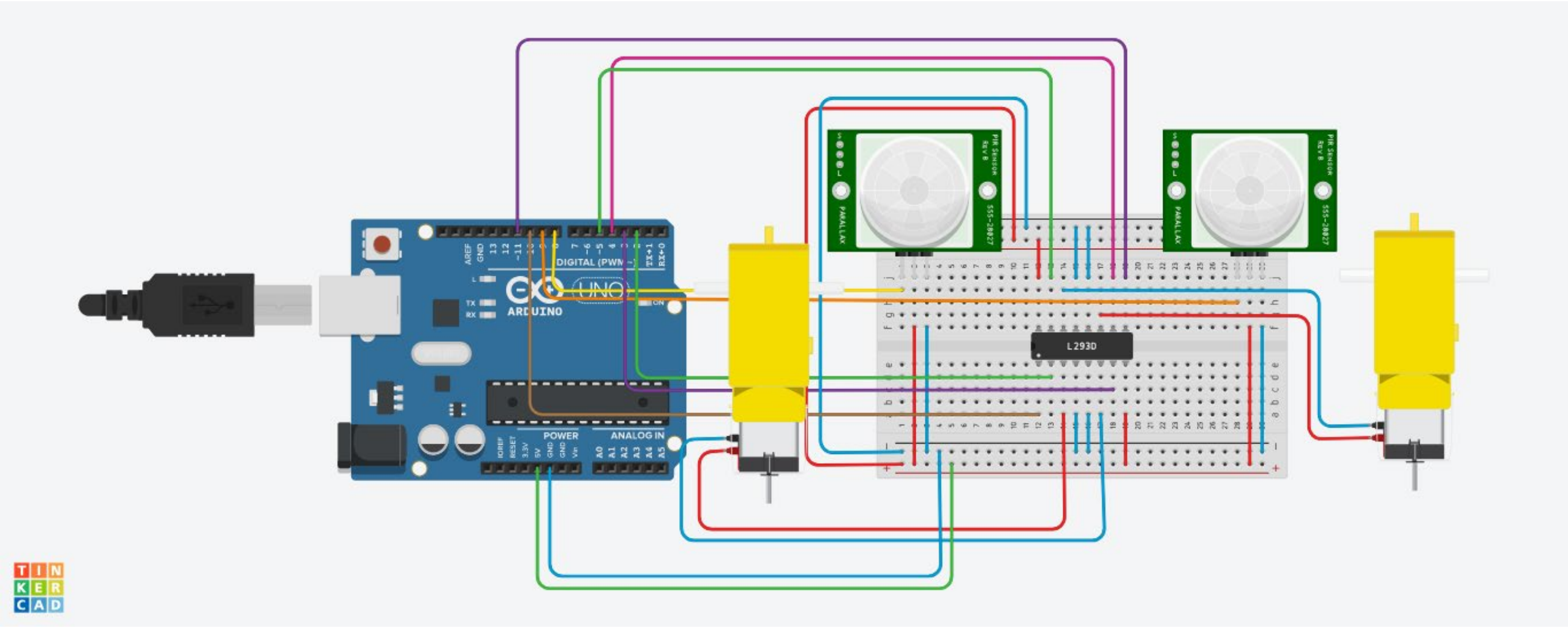
LINE FOLLOWING ROBOT SCRATCH PROGRAM


set X to read digital pin 8
set Y to read digital pin 9
if X = 1 and Y = 1 then
set pin 2 to HIGH
set pin 3 to LOW
set pin 4 to HIGH
set pin 5 to LOW
wait 1 secs
else
if X = 0 and Y = 1 then
set pin 2 to LOW
set pin 3 to LOW
set pin 4 to HIGH
set pin 5 to LOW
wait 1 secs
else
if X = 1 and Y = 0 then

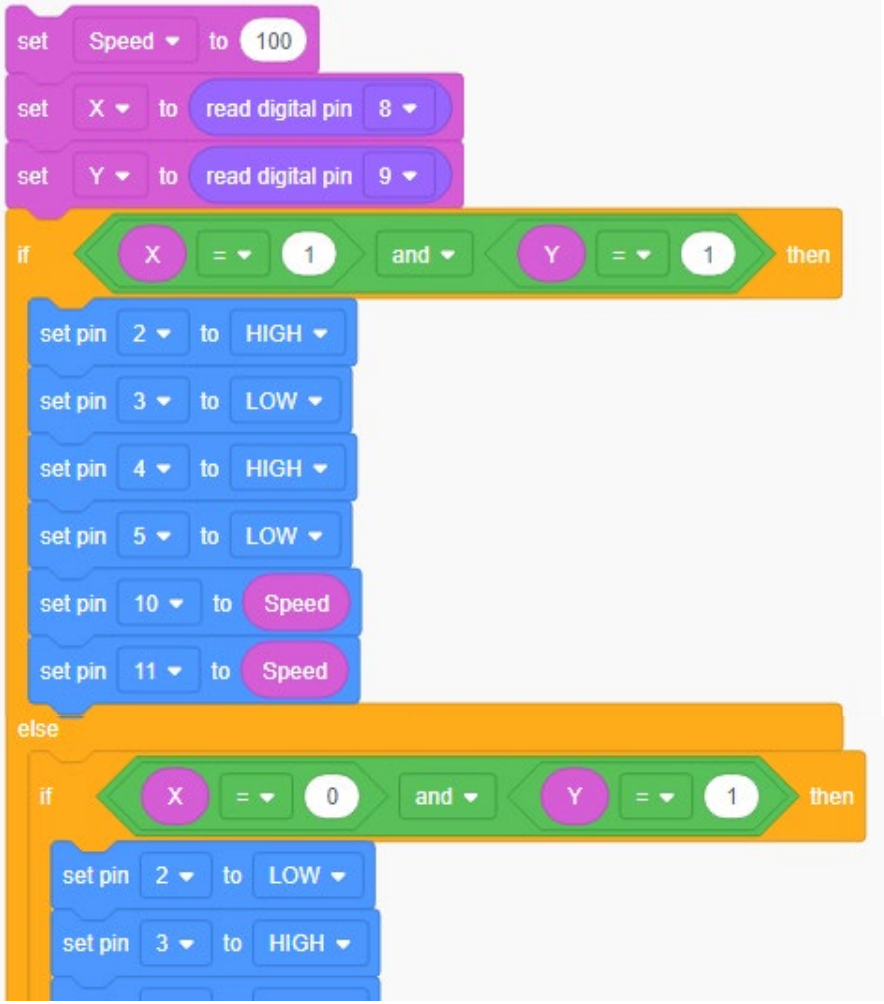



set pin 2 to HIGH
set pin 3 to LOW
set pin 4 to LOW
set pin 5 to LOW
wait 1 secs
else
set pin 2 to LOW
set pin 3 to LOW
set pin 4 to LOW
set pin 5 to LOW
wait 1 secs

LINE FOLLOWING ROBOT CIRCUIT DIAGRAM



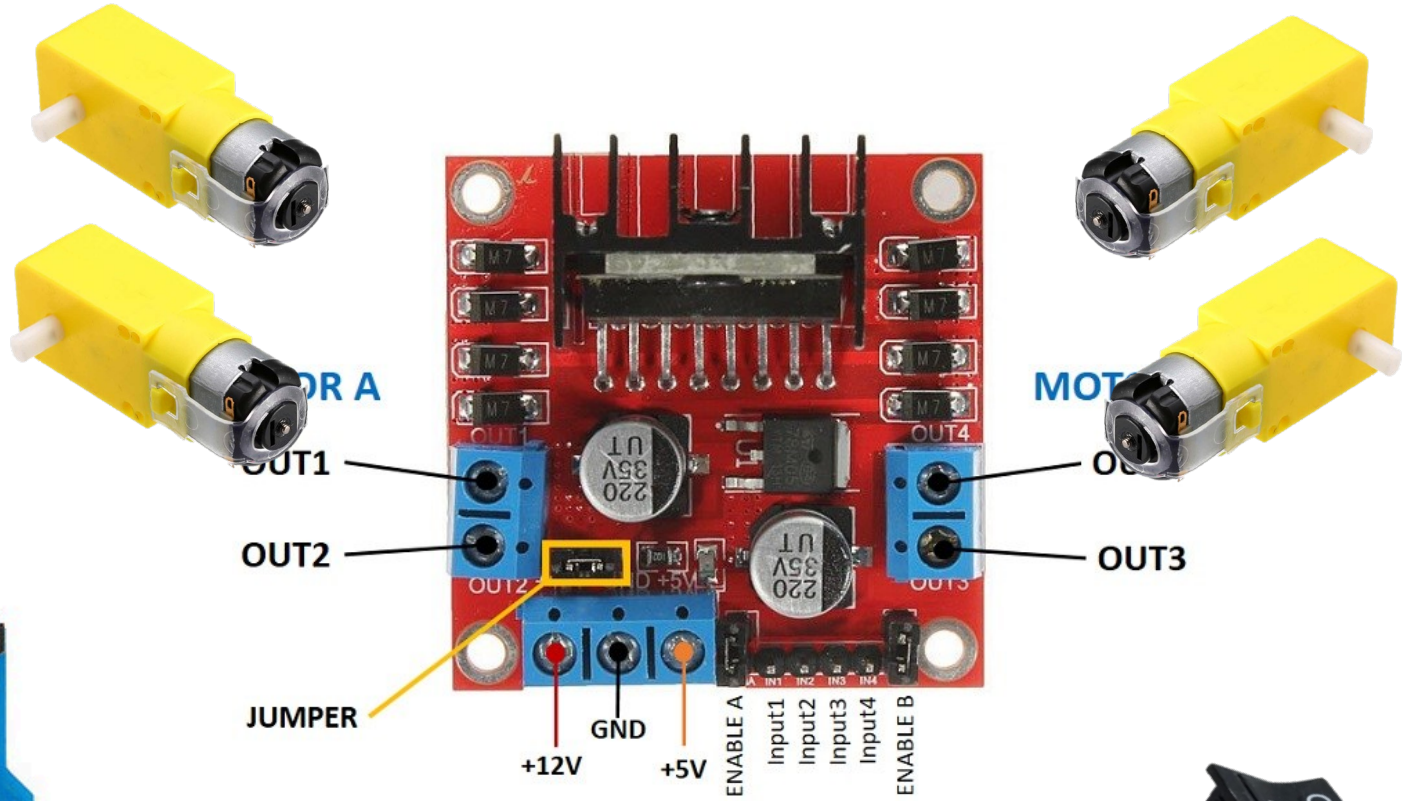
LINE FOLLOWING ROBOT SCRATCH PROGRAM

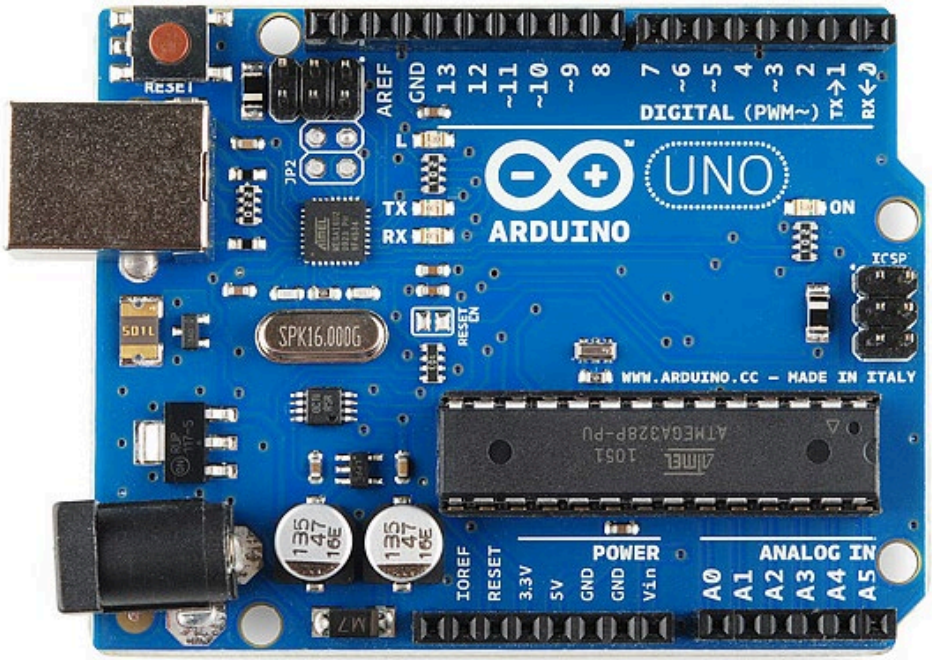

set Speed to 100
set X to read digital pin 8
set Y to read digital pin 9
if X = 1 and Y = 1 then
set pin 2 to HIGH
set pin 3 to LOW
set pin 4 to HIGH
set pin 5 to LOW
set pin 10 to Speed
set pin 11 to Speed
else
if X = 0 and Y = 1 then
set pin 2 to LOW
set pin 3 to HIGH

set pin 4 to HIGH
set pin 5 to LOW
set pin 10 to Speed
set pin 11 to Speed
else
if X = 1 and Y = 0 then
set pin 2 to HIGH
set pin 3 to LOW
set pin 4 to LOW
set pin 5 to HIGH
set pin 10 to Speed
set pin 11 to Speed
else
set pin 2 to LOW
set pin 3 to LOW
set pin 4 to LOW
set pin 5 to LOW

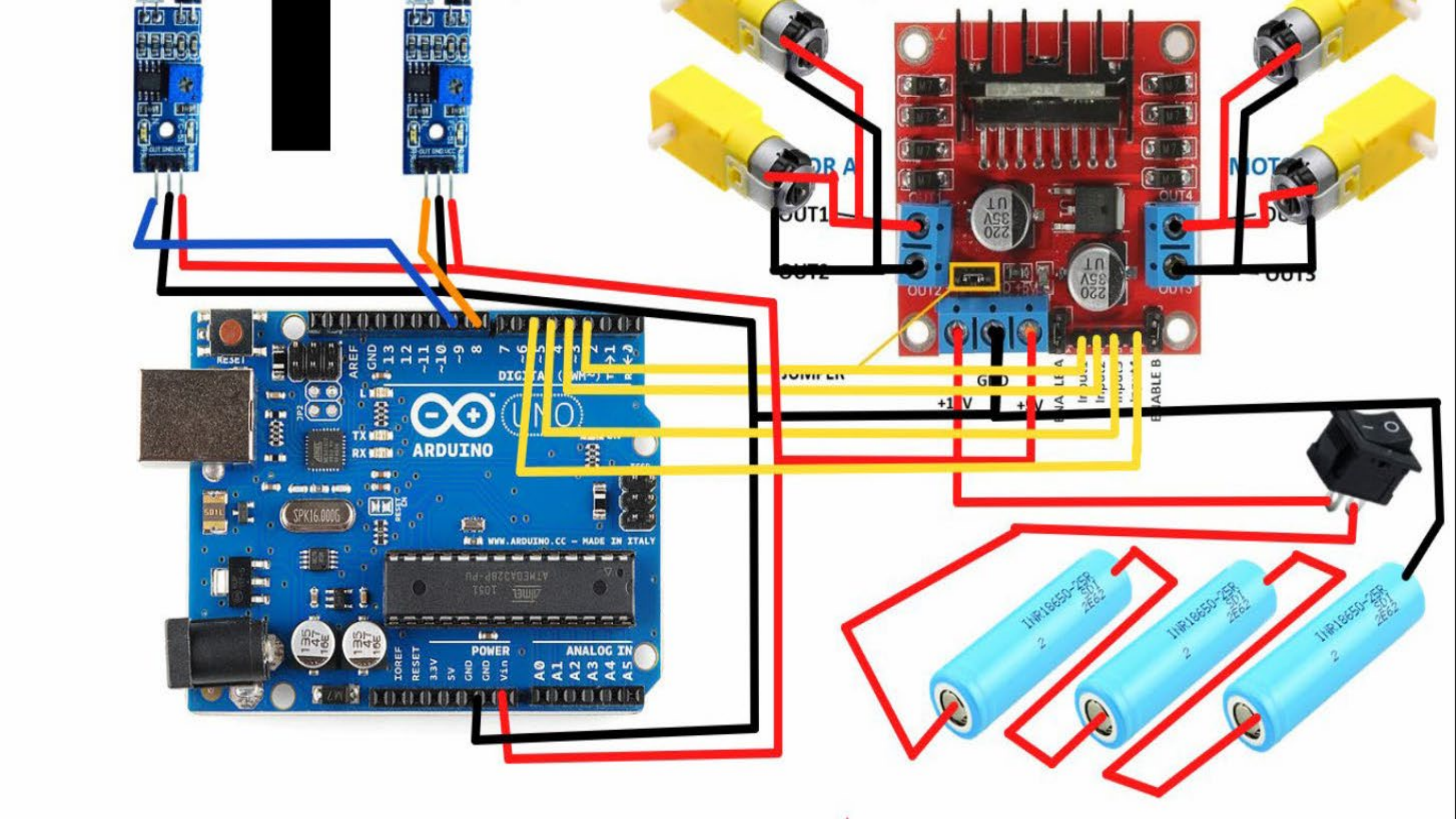
OUT GND VCC
FC-51

OUT GND VCC
FC-51


OUT1
OUT2
JUMPER
+12V
GND
+5V
ENABLE A
Input1
Input2
Input3
Input4
ENABLE B
OUT4
OUT3


UNO
ARDUINO
DIGITAL (PWM~)
POWER
ANALOG IN
WWW.ARDUINO.CC – MADE IN ITALY

INR18650-25R
5DT
2E62


OUT1
OUT2
OUT3
OUT4
+12V
GND
+5V
ARDUINO
UNO
WWW.ARDUINO.CC – MADE IN ITALY
POWER
ANALOG IN
IOREF
RESET
3.3V
5V
GND
GND
Vin
A0
A1
A2
A3
A4
A5
AREF
GND
TX
RX
RESET
SPK16.000G
ATMEGA328P-PU
220 35V
IMR18650-25R